

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (canceled)
2. (canceled)
3. (canceled)
4. (canceled)
5. (canceled)
6. (canceled)
7. (canceled)
8. (previously presented) A network node for forwarding packet-based traffic, comprising:
 - a plurality of queues;
 - a plurality of queue-specific rate shapers respectively associated with the plurality of queues;
 - a plurality of group-specific rate shapers configured to be associated with groups of the plurality of queues;
 - a group establishment module configured to dedicate a group of said queues to a customer and to associate one of said group-specific rate shapers with said group of queues that is dedicated to said customer; and

a scheduler configured to:

schedule, in a first round, packets enqueued in the plurality of queues according to the respective plurality of queue-specific rate shapers and the respective group-specific rate shapers; and

schedule, in a second round, packets enqueued in the plurality of queues according to the respective group-specific rate shapers;

wherein said scheduler is further configured to:

schedule, in subrounds of the first round, packets enqueued in the plurality of queues according to a priority respectively associated with each of the queues and schedule, in subrounds of the second round, packets enqueued in the plurality of queues according to the priority respectively associated with each of the queues;

wherein the scheduler comprises an individual queue enablement vector for each queue, a group enablement vector for the group of queues, and a result vector for each queue;

wherein the individual queue enablement vector indicates which queues are enabled, with a queue being enabled if the queue has not consumed its allocated queue-specific bandwidth;

wherein the group enablement vector indicates whether the group is enabled with the group being enabled as long as all of the allocated group-specific bandwidth has not been consumed; and

wherein the result vector indicates which queues are enabled for sending packets, wherein in the first round a result vector for a queue indicates a queue is enabled only when both the individual queue enablement vector and the group vector indicate that the queue is enabled and in the second round a result vector for a queue indicates a queue is enabled as long as the group vector indicates that the group is enabled.

9. (original) The device of claim 8, further comprising:

a scheduler, coupled to the plurality of queue-specific rate shapers and the plurality of group-specific rate shapers, configured to schedule packets enqueued in the plurality of queues according to the respective plurality of queue-specific rate shapers, wherein

the queue-specific rate shaper respectively associated with each queue is associated with a priority, and wherein the scheduler schedules according to the associated priority.

10. (original) The device of claim 9, wherein said scheduler is further configured to:

scheduling packets for forwarding from a first one or more queues of said plurality of queues, wherein bandwidth consumed by the packets from each of the first one or more queues is less than or equal to respective queue-specific bandwidth limitations for the first one or more queues;

identifying excess unused bandwidth when the consumed bandwidth is less than a group-specific bandwidth limitation, wherein a sum of the consumed bandwidth and the excess unused bandwidth approximately equals the group-specific bandwidth limitation; and

scheduling packets for forwarding from a second one or more queues of said plurality of queues using the excess unused bandwidth.

11. (canceled)

12. (canceled)

13. (canceled)

14. (original) The device of claim 8, further comprising:

a plurality of pipes, wherein each pipe is associated with a group-specific rate shaper, and wherein each pipe of said plurality of pipes includes:

multiple traffic channels comprising one or more queues of the plurality of queues, wherein each traffic channel is associated with a queue-specific rate shaper.

15. (canceled)

16. (canceled)

17. (canceled)

18. (canceled)

19. (canceled)

20. (canceled)